6

Fashion and Participation in Hands of X

Andrew Cook and Graham Pullin

Hands of X is a project about prosthetic hands, identity, fashion, and ownership. This chapter will explore tensions between participatory design and creative direction, and design for disability and fashion design.

A fashion-led approach to designing prosthetic hands

Hands of X is a service, encompassing retail, co-design, and manufacturing, developed and prototyped in Dundee, Glasgow, and London. The project is fashion-led in that, at the very least, it holds that prosthetic hands are accessories that are worn as much as used, and so need to make aesthetic sense in the context of the wearer's identity, sense of style, and wider wardrobe. In prosthetics this is still a radical stance.

The service is designed as a consultation and retail environment, to be set up in shops, makespaces, or even limb-fitting centers, temporarily or permanently. It allows wearers to try different material combinations, at first as swatches, then as hand prototypes, before making a specification for their own hand, which is then made to order.

We prototyped the point of sale service as a mode of inquiry; to explore subtle issues of ownership, understatement, and material nuance with wearers and with other participants from the worlds of fashion and prosthetics.

Hands of whom?

As Frances Corner writes in *Why Fashion Matters*, "faster than anything else, what we wear tells the story of who we are—or who we want to be. Fashion is the most immediate and intimate form of self-expression" (Corner 2014: 4–5).

Just about every object that we might wear or carry on a day-to-day basis comes in a diversity of styles, materials, and finishes, which goes some way toward acknowledging the diversity of the people who might wear them. There is a never-ending choice of stories that we can tell and from coats and bags to umbrellas, phone cases—even key fobs—most of us can find an object that we feel tells part of the story of who we are, or who we want to be. If only to ourselves.

A prosthetic hand is a visible object, both worn and carried intimately on a daily basis. And yet the commercially available range of prosthetic hands offers a choice—broadly—of two stories via two aesthetic languages.

The first, and most common, is the language of imitation; supposedly skin-colored silicone or PVC, in a form imitating a natural hand. The aim is sometimes expressed in terms of not wishing to draw attention to a prosthesis, which is a priority for some—albeit a decreasing number of—people with limb difference. Yet a degree of camouflage can be implied that many disabled people do not feel the need for—and may even be uncomfortable with the deception of "passing" in this way.

The second, and more recent, is the language of the post-human; bionic, visibly high-tech, with exposed engineering, featuring obviously "high-performance" materials like titanium and carbon fiber.

Those whose identities and fashion sense don't square with either of these aesthetic languages have little to no choice of nuanced design languages between these extremes. It's very difficult to think of fashion that's even slightly analogous to either of these design languages.

Design for disability more generally tends to embody either a simplistic notion of "fashion"—bright red hearing aids "to make a fashion statement" for example—or else reject or resent the very notion of fashion for being arbitrary and short-lived, and therefore somehow extravagant and useless.

Of course, fashion *is* socially constructed and transient, and that is part of its joy and attraction. Tony Gross, recently departed founder of eyewear pioneers Cutler and Gross said he had "once shared all the typical accusations that the world of fashion was 'superficial, ephemeral and lightweight,' but came to realise that it's 'exactly these traits that make it so exciting'" (*The Telegraph* 2018).

Cutler and Gross could be said to have revolutionized the eyewear industry by connecting it to the culture of the fashion industry. "It was as if you visited a chiropodist and when he had finished treating your feet, he expected to help you choose a fashionable pair of shoes. Yet that was the service that opticians were offering and that many still are" (Pullin 2009: 237).

So, with prosthetic hands: we are not attempting to challenge the professional role of prosthetists and technicians in limb-fitting centers but, like eyewear, we do see another part of the process that needs to be approached as an experience in itself.

Wearers, not users

The dominant culture in the prosthetics industry casts the people who use prosthetic services and products as *patients* and *users*. Clinical concerns and practical function understandably (if somewhat narrowly) dominate the development and delivery of prosthetics. But we are interested in prosthetic hands as objects that are as much worn or carried as "used"; we believe that people should be thought of as *wearers* as much as *patients* or *users*.

This shift in perception elicits a very different design response. *Wearing*, whether talking about prosthetic hands or clothes, implies a certain synergy between the body and the item being worn. The two together are indivisible, perceived as a whole. *Wearing* also implies choice and intent on the part of the wearer, with a heavy subtext of *intentional* visibility. *Patient* and *user* don't, to our ears, imply any of this.
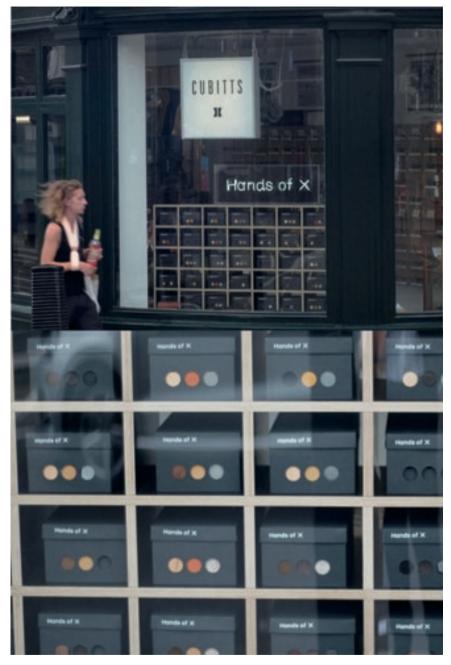
Service prototypes

In mid-2017, we prototyped the Hands of X service in London, at eyewear retailer Cubitts (Figure 6.1), and in a dedicated shop in Glasgow's East End.

A window display is intended to be the first point of contact between customer and service, with a white neon sign atop a set of pigeonholes. Each hole is sized to hold a black Hands of X box. These are much like shoeboxes, but smaller with hand-sized rather than foot-sized proportions. The lid is branded with a foil-stamped Hands of X, with three round holes below.

Some of the boxes in the pigeonholes display material swatches through the holes. Each of these represents a material specification for a previous client's hand. So from the very start, before even entering the shop, these materials, set against black, form a defining part of the visual experience of the service.

On entering, the customer is invited to browse a full palette of one-inch-square materials swatches, and to try combining them. These are organized in a comb on a large cabinet top, alongside some examples of finished hands in different materials, with plenty of room to play and experiment.

Figure 6.1 Hands of X window display at Cubitts eyewear shop, London (2017). Photograph by Andrew Cook and Graham Pullin.

A materials-focused brand

At its heart, our brand is characterized by the unremarkable and everyday, yet it is as considered and resolved—we hope—as one would expect from any nascent fashion brand. Here, *no-big-deal* is the maxim and this spirit is embodied in every element of the service; signage, furniture, printed material, product, service script, and so on.

Most deeply of all this is manifested in the palette of materials at the heart of Hands of X: not any material at all but a carefully curated palette of everyday materials with deep associations.

The first material collection (Spring–Summer 18) featured various woods (beech, cedar, walnut) in oiled, waxed, and soaped finishes, cellulose acetates ("tortoiseshell" and translucent), leathers, woolen felts, and steels.

Avoiding the "hipster hand"

We recognized that the materials palette, with its air of "heritage," would be all too easily read as a clichéd hipster vernacular—we regularly expressed our horror at the prospect of being referred to as the "hipster hand project." And in this sense we are keen to avoid a short-lived brand language. The visual language was intended to help offset this.

As communication theorist Paul Watzlawick wrote, "one cannot not communicate" (Watzlawick, Bavelas, and Jackson 1968). Visual communication, brand, and signage was a way of setting expectations and encouraging a mode of engagement. Visual identity—logotypes, typography, paper stock, signage—was one of the first things that we developed, and in many ways led the design language of the whole service.

Browsing

Given that each hand is manufactured to order, and likely to be worn for a long time, it feels important that the client is able to explore, to take their time and familiarize themselves with their choices before committing. After all, isn't that exactly what we all do when we browse for any new piece of high-value fashion?

There's a quandary when having something bespoke made, though. How is it possible to browse when the piece you'll eventually choose doesn't exist yet *by definition*. If we look at the world of bespoke suits—and eyewear—there are

some clues. In many tailors, the very first step is that the customer is left alone in the front of shop with sets of sample books, to browse the available materials choices. Indeed, Cubitts themselves have a wall of dozens of eyewear acetate swatches to browse, pick up, combine, and compare above their consultation table. The first part of our service is the same; to explore, play, and combine the materials on offer in the form of swatches.

The reveal

Next, we open a drawer in the plan chest to reveal "jigsaw" parts in all of the same materials as the swatches. Each drawer contains every part in every applicable material. Using these parts, customers can make abstracted 2.5-dimensional hand prototypes in any possible material combination.

Opening the drawer as a shop assistant, one feels like something of a magician: it's a big reveal (Figure 6.2). Something about the plethora of materials in recognizable shapes gives a sense of abundance.

Figure 6.2 A cabinet drawer opens to reveal "jigsaw" hand parts in an array of materials (2017). Photograph by Andrew Cook and Graham Pullin.

Swapping

We begin by pulling out jigsaw parts in all of the client's chosen materials, using their swatches as a reference. Then they put these together into hands, using their swatch combinations as a reference. These are designed to be easily constructed using one hand.

Then, we discuss what's working, what's not, and if there are any alternatives that they might want to try. A lot of swapping tends to take place. A promising combination in swatch form can suddenly feel not-quite-right when seen in full-hand proportions. We swap between hands, pull alternative parts from the drawers, swap them back again for a last look before declining them . . .

Living with it

Once the client has decided on a final material combination for their hand, they are given an empty black box from the display cabinet in the window. We put the swatches for their chosen combination in the front, and fill out a form on the back. The box itself becomes the specification for their hand, and they can use it to take the jigsaw prototype hand home, to live with for a while. The hand would be fitted with a connector compatible with their own socket so that they could try it on, with different outfits and in different moods. They can see if it really does feel like *their* hand before committing.

Through this process, a dialogue takes place between the wearer, the hand, and their wardrobe. And most likely also with family, friends, and trusted style advisers.

Participatory design within Hands of X

The service we have described was the culmination of a process of co-design. We worked with wearers (and non-wearers) in conceiving and defining Hands of X; the designs of the hands, the materials palette, the fundamental nature of the project. In this section we'd like to offer our experience of, and reflections on, the practicalities of designing with wearers.

We worked hard to take control of the tone of the dialogue

Our first substantive contact with participants, in the first months of the project, was a series of events at Dundee Design Festival, The Institute of Making at UCL,

and MAKlab Glasgow, a public access makespace. A mix of prosthetics wearers, prosthetics professionals, designers, makers, artists, and materials experts attended.

Each of these workshops culminated in participants making a specification for a hand in two materials, which we intended would directly inform the development of the hand designs, materials palette, and service.

At these events, we sought to set the spirit of engagement through every available means. Copywriting, graphic design, exhibition design, tone of voice of presentations—every element of an experience helps to guide the spirit in which people engage with it. Those who work in branding are well aware of this. But these opportunities are taken advantage of much less both in research- and development-based activities. In this sense the participation was, as we shall see and discuss further, a hybrid of open-minded, open-ended participatory design and vision-led, fashion-led design.

The events consisted of three activities, and the first two can be viewed as another means of framing engagement and setting the scene for the final, pivotal task.

Task 1—Materials speed dating

The first, straight after introductions, was a "materials speed dating" exercise, where participants were paired with three material samples from the Institute of Making's materials library, and asked to reflect upon their qualities in a one-minute stream-of-consciousness.

This exercise was crucial in setting a tone of reflective—yet instinctual—engagement with, and dialogue around, the qualities of materials, a tone that we hoped would make its way into the more obviously hand-related tasks.

Task 2—Badge making

The second exercise again involved direct engagement with materials, but this time narrowed the palette to much more everyday materials, an important aspect of the spirit of the project. We provided a selection of circular materials swatches, the participants chose two, and made a wearable badge from them. One material faces out to the world, the other faces inward, toward the wearer, not visible to the world.

This exercise introduces several important considerations. The idea of combining materials swatches, and that combinations of materials can be more (or less) than the sum of their parts; of choosing materials, based on a sense of

personal style, to be worn with the rest of one's outfit (and perhaps even whole wardrobe); and of how materials might express something of one's identity to the world at large or, like the silk lining of a suit, exist almost entirely for the wearer.

Task 3—Hand specification

Our final task was to design a two-material hand. Participants specified the materials used, then photocopied material samples and collaged a design showing how the hand would be partitioned between these materials. They made this specification on a specially designed hand specification sheet.

Probes

The specification sheet is an example of what we've come to refer to broadly as a probe. For our purposes, we may define a probe as a design research tool designed to provoke and capture insights, where the design values of the tool itself aim to set an appropriate tone for engagement.

The basis of the concept—and the term probe—has its roots in the design research method of "cultural probes" (Gaver, Dunne, and Pacenti 1999). These were developed as tools for gathering insights, using novel, sometimes even irreverent, means; one classic example is a disposable camera and list of carefully crafted instructions of subjects for photographs. Where this exercise has since often become formulaic, the fundamental strength of the original work, from our point of view, was that the materials were so thoughtfully considered. The design values were high and consistent, and set the bar at a level of care and imaginativeness that the designers hoped for in the participants' responses.

It's not just quality, either, but tone of voice. The irreverence and lightness of touch of the original cultural probes, both conceptually and visually, makes it implicitly clear that the designers are expecting some irreverence and creativity in return.

Design values can set the agenda on a more nuanced level too. In our case, we tried to set the agenda of the everyday through a workaday design language, and through the thumbnail images of objects and hands that pepper the probe. But there's gentle humor there, too. One thumbnail image of a paint-spattered hand holds a cigarette, a minor act of rebellion against the overwhelming formality and wholesomeness of spirit that defines so much design for disability.

Printing and paper quality is important too; we printed using spot inks rather than process, and ordered specific GF Smith paper stock. We wanted it to feel a little like those paper placemats, familiar from UK mid-market chain restaurants like Wagamama or Pizza Express, disposable enough that people aren't precious about them, but still obviously considered, and a defining part of the whole experience. All of this is intended to frame the terms of the ensuing dialogue—dialogue between the participants and the sheet, between their bodies, clothing, and the available materials, and between all of the people in the room.

Specifications

The hand specifications that went on to be most influential as the project progressed came from C and E (Figure 6.3).

C is a businesswoman, charity founder, and ex-Glasgow pub landlady. She lost both hands and feet through illness a few years ago. She is unapologetic about her lack of hands, and has a hi-tech bionic hand that she rarely chooses to wear. She spoke of her desire for prostheses to be "interesting"—even for them to provide a talking point.[1]

E is a sweet-natured writer and lecturer who was born in the early 1950s with one hand. He wears a simple mechanical hand in an oxblood leather glove. In contrast to C, he talked about wearing a hand to avoid making other people feel uncomfortable. He doesn't really use his hand for any practical purposes, apart from occasional incidental uses, such as knocking in nails or cleaning mud off his golf clubs.

C's and E's specifications reflect their different attitudes. E uses materials that are resolutely everyday: beech and steel. C's material choices, while far from being ostentatious, are more striking and literally remarkable: yew wood, with its undulating grain and red color, tortoiseshell cellulose acetate, and imperfect, burnished leather.

The partitioning of these specifications became pivotal; their essence went on to define the final hand designs and materials palette. E specified a steel section in the outer heel of the palm, originally intended for knocking in nails, while C used leather on the fingertips and knuckles, specified to give grip when picking up and leaning on the hand.
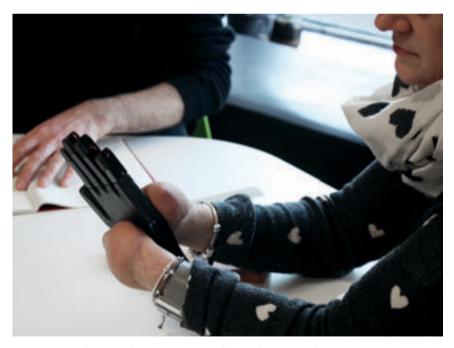
Figure 6.3 Completed hand specification sheets by C and E (2016). Photograph by Andrew Cook and Graham Pullin.

Two-material hand prototypes

In all, we received more than sixty hand specification sheets from the three workshops. We mapped these specifications using various axes as a means of selecting twelve that embodied a diversity of approaches, while still fitting with the ethos of the project. We adapted some of them, making changes to materials and partitioning, while respecting the original intent of the hand authors.

We prototyped these in what we referred to as 2.5 dimensions. These were a simplified two-dimensional hand outline, made in the actual specified materials, extended to a thickness of 18 mm to give a sense of materiality, weight, and object-ness (albeit abstracted) (Figure 6.4). This is very much in the lineage of the single-material hands, the first set of abstracted prototypes that we made, which deliberately set aside much of the complexity of wearable prosthetics.

These twelve hands were intended to form the basis of conversations—internally between the team, but also with wearers, to provoke discussion about the relative merits of the twelve approaches illustrated. The physical objects facilitated discussions with a depth that couldn't have been achieved without

Figure 6.4 C discusses her impressions of a 2.5-dimensional prototype in tortoiseshell acetate and leather (2016). Photograph by Andrew Cook and Graham Pullin.

them. Deep conversations around materials and design, but also surprisingly emotional and touching conversations around taste, fashion, and personality; around what we wear, including prostheses, and what that means to us, and says to the world.

C and E, while reflecting deeply on the qualities of the other hands, ultimately each returned to "their" hands—the ones based on their original specifications—as their favorites.

Two hand models

The final Hands of X service offered two hand models, one mechanical and one motor-powered myoelectric (Figure 6.5).

They were designed by the team, product designer Joshua James and glovemaker Riina Õun. Even after many iterations considering form, materials partitioning, and manufacturability, the essence of those original specifications from C and E still define these hands.

Figure 6.5 Hand prototypes. Mechanical hand (left) in beech, tan aniline leather, and carbon steel. Myoelectric hand (right) in cedar and gris fumé aniline leather (2017). Photograph by Andrew Cook and Graham Pullin.

In *Hertzian Tales*, Tony Dunne characterized early prototypes that—despite being rough, unformed, or unrealistic—go on to define an object as it develops as genotypes. "From a product design point of view these models lack industrial realism … [we] might regard it as embodying the essence of the design idea, a 'genotype' rather than a prototype … The object's 'content' or 'genes' are important, not its appearance" (Dunne 2008 [1999]: 90).

The early specifications from C and E shown in Figure 6.3 can be considered genotypes for the two final models. Their genes are still defining, even as the objects and service were iterated and developed into something more concrete.

Mechanical / Hand of E / Hand No. 1

This is a simple mechanical hand with the thumb as the only moving part. This acts as a simple clip, and can be used to hold small objects by manually pulling the sprung thumb open using the other hand.

The design of the Mechanical Hand of X is partitioned into three materials. The main body of the hand, made from a rigid material, a leather gaiter covering the moving thumb, and a panel in the outer heel, made from either a metal or a felt.

It's easy to see how E's original specification, with its metal section to allow the hammering in of nails, has informed this design. This detail may have started as a slightly jokey one-liner, but through the 2.5-dimensional prototypes, it became apparent that this could be a beautiful, defining detail; a section that the hand rests on when the wearer is sitting at a table, in hard-wearing metal, or in soft, quiet felt.

This particular prototype is made in E's original material choice of beech and steel. Throughout our co-design with E, through every prototype iteration and opportunity to reconsider, E stuck with these materials, speaking of a sense of ownership over this hand, even before it existed in any physical form. This was a decision, taken relatively quickly, that was nonetheless informed by decades of experience and E's own sense of fashion.

Myoelectric / Hand of C / Hand No. 2

This is a two-material hand model, with an opposed, gripping first two fingers and thumb, operated by a muscle sensor in the forearm. It has a rigid body with leather gaiters covering the moving parts, and three leather fingertips on the gripping fingers.

Again, it's easy to see how C's original hand specification sheets have informed this design. The partitioning of the leather parts remains almost unchanged

from those collages. They were originally intended for grip, which still stands, but they have also become a flexible cover for mechanical parts. Perhaps more importantly, aesthetically they define how the hand reads, breaking up the composition, adding to its artificiality, but, we feel, reducing its uncanniness.

Like E, C stuck very close to her original decisions throughout the process.

Ownership

This sticking with decisions, from the first to the last opportunity, feels to be a true indicator of ownership, whether this ownership comes from the rightness and longevity of the decision, or through the very act of taking (and remembering) the decision. When the project started, we thought that it was mostly about fashion, materials, and prosthetic hands. Yet as it progressed, we realized that the overarching theme of the project was in fact ownership. Our co-designers talked consistently about "their" hands. Some even pinpointed, unprompted, the moment in the service when the hand prototype felt like "theirs."

Controversies arise around declining ideas

Yet to present this journey from ideas to designs as a clean, linear journey would be to oversimplify it, as would to gloss over the complexities of the ownership shared between designers and wearers. Our position as designers with an acknowledged agenda meant that we were at liberty to decline ideas that didn't fit with the project as we defined it. For example, at the London workshop, participant Y rejected choice of materials in favor of applied decoration, and rejected an abstracted hand in favor of redefining a three-digit gripper.

We declined to take these ideas forward on the project. While (of course) a wholly valid personal wish, it represented a negation of our ethos and starting point (importantly, in a context where many more wearers embraced it and appropriated it). There was little productive that we could do with it, except to acknowledge that Hands of X was not all things to all people, which we were clear about from the start.

This approach can be criticized as simply ignoring inconvenient contributions, and indeed caused some tension between team members with design backgrounds, and those with anthropological backgrounds. One could even question whether to decline some contributions but not others is unethical.

Our co-investigators at UCL, Sarah Wilkes and Mark Miodownik, have written that "the fundamental differences in what different members of the team perceived co-design to be only became apparent later in the project. The materials researchers understood this to mean a participatory approach where users inform and become part of the creative process from start to finish" (Wilkes and Miodownik 2018: 17). Where we thought that this was exactly what our co-design process was doing, Wilkes and Miodownik felt that 'users' should be more involved in specifying requirements.

In traditional anthropological, data-gathering, and analyzing activities, our approach may well be ethically ambiguous. But as designers—whether commercial or researchers—it's routine to work this way. Extensive design ethnography will often gather just one or two unexpected and inspiring insights that go on to define the rest of the project (Suri and Howard 2006). The rest of the ethnographic investigation isn't lost, but rather becomes context, influencing design activity in less explicit ways.

How our fashion brand is disability-led after all

As we have seen in detail in the section "Participatory design within Hands of X," designing with wearers and prosthetics professionals was pivotal in creating the service that we've described.

In fact, it's the *only* way that we could approach this design process. Not only is the value added to the project by participants immeasurable, but to design any sort of prosthetic product or service without the involvement of wearers would be indefensible. However, we also had an unashamed design agenda, and a vision of our own.

Squaring a strong agenda with input from co-designers is something that any designer working with these methods has to address. This section contains our reflections on why resolving the tension between these two is possible, and indeed necessary—for fashion-led design for disability, perhaps even more than for other domains.

Nothing about us without us

"Nothing about us without us" has become a mantra for the disability rights movement. As James I. Charlton explains in his text of the same name, the phrase

"expresses the conviction of people with disabilities that they know what is best for them" (Charlton 1998).

Even in design fields not explicitly related to disability, the process of involving the people that you are designing for—and involving them in ways that go way beyond lip service to fundamentally guide the design process and outcome—is increasingly considered not just good practice, but vital practice.

This project involves very complex issues. It needs the input of potential wearers. It needs their deep and personal understanding of these issues, informed by lived experience, to have any chance of a compelling, sensitive, and successful outcome, by whatever terms success is measured.

And yet . . .

Compelling fashion design, from couture to streetwear, typically relies on a singular vision informed by a strong ethos and brand. For all the people that it takes to bring a fashion brand's collection together, the creative director's vision sets the agenda. The value of an agenda that displays a point of difference from what-everyone-else-is-doing, and exhibits genuine personality and idiosyncrasy cannot be overstated.

To take one recent critically lauded, and much talked about, example: Alessandro Michele's AW18 collection at Gucci was inspired by Donna Haraway's text *A Cyborg Manifesto*, well known in academic circles but rather unexpected as the key inspiration for one of the world's biggest fashion houses. Michele's collection presented a purposeful, yet wryly critical, post-human narrative that saw boundaries between human, animal, and machine blurred, including models apparently carrying their own severed heads as clutch bags (Marriot 2018). It's safe to say that Michele's agenda was not set through an extensive co-design process with his brand's wearers, nor through consultation with trend-forecasting agencies.

Even in less high-concept circles, successful fashion brands are almost always sprung from a clear vision and ethos; they are unashamed about having a personality. One of our own biggest inspirations for Hands of X, Universal Works, rubbed gently against the grain when it was conceived, with collections inspired by super-functional twentieth-century workwear at a time when that was still an unexpected source of inspiration. The label was, arguably, instrumental in setting a fashion agenda that has since been picked up (and upended by) Vetements at their peak of influence, among others. Faux "heritage" workwear is

now very common in mainstream circles—among people who probably couldn't have imagined themselves wearing a farm laborer's jacket a few years ago.

So a successful fashion brand, by definition, isn't for everyone. It has a strong and individual ethos and personality, which may even seem odd or counterintuitive when it first appears, only to subsequently inform the mainstream.

It was our intention that this project be led by a strong design ethos from the start, informed by the 'super normal' (Fukasawa and Morrison 2008) and the everyday.

Reconciling a strong design stance with being disability-led (and vice versa)

There is tension here, two agendas that at first glance aren't that obviously compatible; a clear stance and design ethos, and the necessity (and desire) to be fundamentally guided by wearers throughout the design process. And this is compounded in disability-related design by our own involvement as non-disabled designers.

How do we square a strong stance and ethos as designers with meaningful co-design? In this case the reconciliation comes from the fact that our stance echoed that which many disabled people have toward their own disability. A stance that is not reflected in current alternatives in prosthetics hands.

No triumph, no tragedy as a stance on disability

Those two aesthetic stories that prosthetic hands currently tell reflect the two narratives that our culture habitually tells around disability—tragedy and triumph, or more usually triumph *over* tragedy.

The realistic, skin-colored hand can be seen to reflect a perceived "tragedy" of impairment. It is an attempt to replace something that is missing, and doing so with ultimate discretion is its overriding aim. This aim of discretion is telling in itself, perhaps suggestive of a perceived shame. The design language of bionic hands shouts of the triumph of engineering over impairment; the ability of these extraordinary objects to restore function via technology and engineering, writ large in its form and materiality.

Peter White's radio program *No Triumph, No Tragedy*, in which he interviewed people with disabilities, sought to reposition the narrative of disability neither as a tragedy nor something to triumph over, but as something important

yet everyday, one aspect of a personal story as complex as any other (BBC 1994–2017).

Disability objects can imply a transformative arc of triumph over tragedy. That this narrative is all too dominant is reflected in the title and stance of Peter White's program. Many other disabled people resent an expectation that they feel is imposed upon them by others, that design will transform their lives. "We would like to evolve unremarkably" says Liz Jackson, Founder of the "Inclusive Fashion & Design Collective," rebranded as "The Disabled List" (Pullin 2018: 176).

No-big-deal as a design stance

From the start of the project, Hands of X too took a stance that challenged these narratives, with aspirations toward designs that were not seeking to "pass" as a natural hand, but neither to be extraordinary. "No-big-deal" was a project mantra from the start. Not that we were presuming that limb difference be perceived in this way, just that these hands, as objects, be positioned so.

A radical juxtaposition of the binary choice between anatomical realism and bionic technophilia can be found in Sophie de Oliveira Barata's Alternative Limb Project. While we are great admirers of the ethos and imagination of this project, and the opportunity for self-expression that this affords through prosthetic limbs conceived as "highly stylised wearable art pieces" (The Alternative Limb Project 2018), it does not aspire to subtlety and understatement. The intent of Barata's extraordinary work is—deliberately—*not* no-big-deal. Being clear that in this way Hands of X is fundamentally different to the Alternative Limb Project was another key part of defining the project's identity.

Post-it and big-ego design

So Hands of X had a strong point of view on its identity and ethos, on its aesthetic language and tone of voice from the earliest days. We knew what we were *not* as well as what we were. We were also clear that the design process had to be fundamentally participatory. We had to find an approach that squared the two.

This dilemma has been reflected upon by design academic Ezio Manzini, who makes a distinction between "big-ego design" and "post-it design" (Manzini 2015). In post-it design, the designer becomes primarily a facilitator of ideas

expressed by stakeholders during participatory design exercises, usually on the ubiquitous Post-It™.

The post-it itself is emblematic of the problems with this approach in a couple of ways; no matter how well thought through the exercise might be, providing a group with post-its and a pack of pens to record their responses doesn't exactly speak of care or designerly spirit. And deep thinking can be difficult to express on a few square inches, so instead it's tempting to fill hundreds of post-its with more shallow thoughts. At its most extreme conclusion, this approach means that the designer becomes a mere "process facilitator"—a scribe of participants' one-line ideas, synthesizing and embodying them (Manzini 2015).

Conversely, big-ego design represents a dominant model of twentieth-century design, a "demiurgic vision, in which design is the act of particularly gifted individuals capable of imprinting their personal stamp on artifacts and environments" (Manzini 2015: 66). And this approach is undeniably still relevant in certain types of design, not least those fashion houses mentioned earlier. But in any area where the designer is addressing complex social, personal, or behavioral issues, it reads less as being visionary, rather more so as being willfully ignorant.

By being conscious of making our participatory methods as engaging, visually driven, materials-focused, and designerly as possible, we set the spirit of engagement as visual, materials-focused, and designerly. As a result, the responses had a depth, unexpectedness, and richness that transcended "post-it design." And yet, not least because it was impossible not to be influenced and inspired by the responses, the process was genuinely wearer-led.

Inspiration vs. requirements

Both post-it and big-ego approaches can have their merits, but the balance between the two can be difficult to strike. Go through too much of a "post-it"–driven process, and it's easy to capitulate to your subjects, with little critical thought or editing, ending up with a *flying submarine*; something that does too many things, and none of it particularly well, ultimately appealing to nobody.

There is always a danger that the outcomes of participatory design become a list of requirements to be beholden to. This is to miss the true value of the insights from this process. The insights of participants, when the exercise is appropriately framed, is a source of incredible insight and inspiration, and treating them as such is an unending supply of fuel to drive the design process. And just to be clear, we are talking about *design* inspiration here, not the connotations of

patronization that Harilyn Rousso's consummately written *Don't Call Me Inspirational* denounces (Rousso 2013).

We argue for undertaking co-design methods while:

- being unashamed about having an agenda
- being unashamed about declining ideas
- being unashamed about being designerly, and aesthetically focused
- being unashamed about taking a promising kernel of an idea and adapting it so that it fits with the agenda.

We felt justified in adopting those wearer-led ideas that we felt embodied the values and vision of Hands of X (not exactly those ideas "that we liked" since the lens they were viewed through was that of a highly considered brand, and so more objective). And we naturally went on to co-design in more detail with wearers whose perspectives complemented our own, without fundamentally contradicting them.

The flip side of this is that the depth of influence of the individual can go way beyond more traditional academic approaches. In our case, the individual participants acted as the seed of everything. As ideas develop around (and sometimes away from) their initial response, the original *genotype*, the "genes" of their idea, still defines the direction that we take (Dunne 2008 [1999]). As designers, it's impossible to forget where these ideas came from.

A last word

"It's nice if glasses can be sexy and mysterious. People who need glasses don't have to feel separated from glamour"

Tony Gross[2]

"My idea of design is a bit old-fashioned. It should be practical, functional and then look good—in that order"

Graham Cutler[3]

Tony Gross embraced the "superficial, ephemeral and lightweight" culture of fashion, whereas his partner Graham Cutler values practicality above all things. Perhaps this tension is what made Cutler and Gross so successful and influential a brand. So perhaps it is less important that fashion-led and co-design principles are completely reconciled than that they merely coexist—as we hope that they

do in Hands of X. Our further hope is that this approach becomes more influential, and that as a result disability-led design can become more nuanced.

Disclosure statement

Notes

1 Since the time of writing, C has undergone a successful double hand transplant.
2 See: https://www.fashioneyewear.co.uk/designer-glasses/cutler-and-gross/frame_colour/green.html (accessed September 6, 2019).
3 Ibid.

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